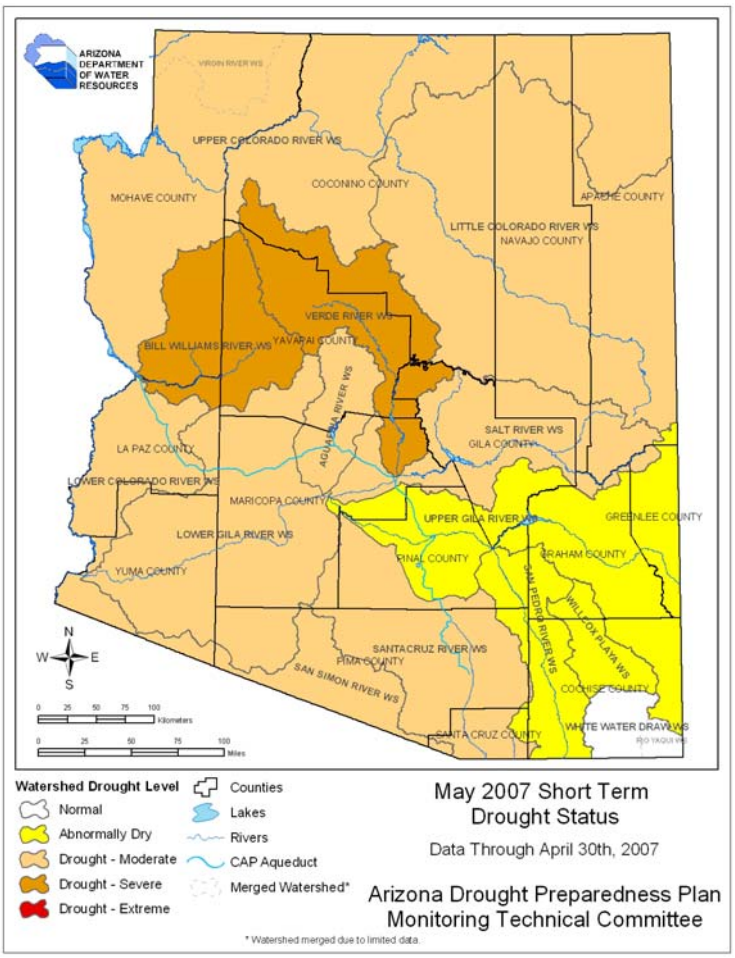
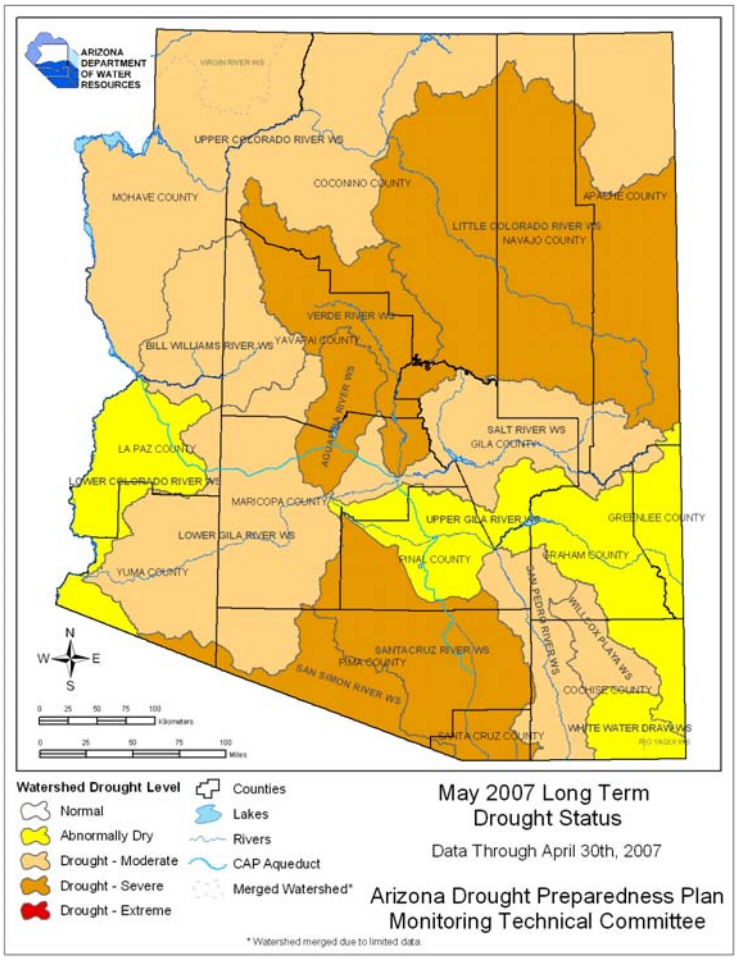
Arizona Drought Monitor Report

May 2007

Short-term Drought Status



Long-term Drought Status

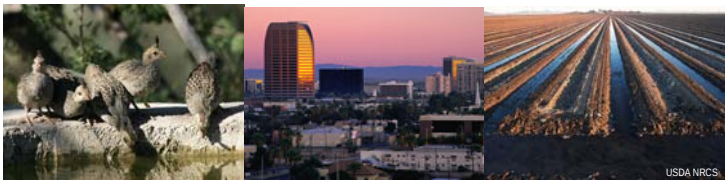


Short-term Update

The short-term drought status shows the Verde watershed has dropped to severe from moderate drought, while the Little Colorado and Salt River watersheds have slipped from abnormally dry to moderate drought. The rest of the state remains unchanged. All three periods, the 3-, 6- and 12-month, have had well below-average precipitation across the northern half of the state.

Long-term Update

The long-term drought status had a one category drop in drought status for most of the watersheds. In east central Arizona, the Little Colorado, Verde, and Agua Fria slipped from moderate drought to severe drought, while the upper Colorado, Bill Williams, and Lower Gila River watersheds dropped from abnormally dry to moderate drought. The lower Colorado watershed dropped from normal to abnormally dry status.



Drought Impacts

Governor issues Drought Declaration

Governor Napolitano signed a Drought Declaration for the State of Arizona on May 22, 2007, to raise awareness of Arizona's drought and encourage conservation. Arizona is entering its second decade of a statewide drought due to long-term precipitation deficits and increased demand for water. The declaration calls upon citizens, businesses, schools, institutions of higher learning, local governments and federal agencies to increase water conservation efforts.

Arizona's drought declaration provides a mechanism for both preparedness and response to drought through the implementation of the *Arizona Drought Preparedness Plan* and action of local drought impact groups. The state continues to implement proactive measures to limit the effects of the long-term dry spell and minimize the risk of a drought emergency situation.

By working together to create a culture of conservation, all residents of Arizona can play an important role in reducing the impacts of drought on our natural resources, our economy, and our quality of life. Adopting a low water use lifestyle can be accomplished through simple changes to our daily routines. Visit ADWR's conservation web site at www.azwater.gov/dwr/Conservation/ for outdoor and indoor water conservation tips.

Reports from Yavapai County

Drought impact reporters in the county report that a lot of the shallower dirt tanks have dried up, and many others may be dry in the next few weeks. Some ranchers have started to haul water. The feed on spring-time annuals was very limiting, and perennial warm season grasses, which constitute most of the range feed, have not started significant above-ground growth yet. These grasses now will not make significant above-ground growth until the summer rains start in July. Impacts to livestock will become noticeable next month; the extent of the impacts will vary at each ranch.

As the heat rises, more ditch users are irrigating their lawns and pastures, making water levels in the ditches low. One farmer reports being forced to stop watering several times because there was not enough water left for the crops. She expresses concern that some of the watering is for aesthetic purposes and feels there is a need to educate ditch users on how often they should be watering. Ditch levels in the future will determine the farm's crop production. She reports further damage to crops by elk driven down from the rim.

Other drought impact reporters in the area report that they had only three rain showers during the month of April, two of which lasted less than 60 seconds. Flows in Banning Creek decreased during the month of April, but water still remains in some areas.

Pima County Revises Drought Ordinance

The Pima County Board of Supervisors unanimously passed a revised Drought Ordinance at their meeting on June 5th. The revised Drought Ordinance is now more in line with water providers in the area and is consistent with Arizona's drought program. For example, the county will now rely on drought status maps produced by the State Drought Monitoring Technical Committee (those on the front page of this report). These maps give consideration to local conditions to attenuate long- and short-term drought status changes.

The approved revision of the Drought Ordinance will be posted on several of Pima County's web pages, including www.pima.gov/drought. Pima County continues to be in a Drought Stage 1, as declared at the end of April.

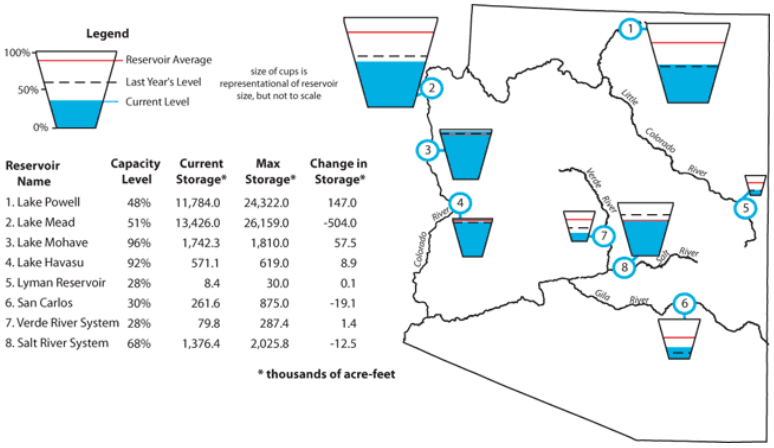
Reservoir Storage

Arizona Reservoir Status

Along the Colorado River, Lake Mead decreased by 2 percent of capacity level since last month (Figure 6). Lake Powell storage increased slightly, due to early snowmelt runoff in the Upper Colorado River Basin. In-state reservoir storage decreased slightly, notably at San Carlos Reservoir, but San Carlos is still far above levels during the worst of the drought.

A warm and dry March stimulated snowpack loss through sublimation (direct loss of snowpack moisture to the atmosphere) and early snowmelt. Recent warmer temperatures have affected snow runoff and inflow to reservoirs. The early meltwaters, including a recent surge in Colorado streamflow, will soon reach reservoirs. Lake Powell is currently 99 feet below full pool elevation. The water surface elevation of Lake Powell reached a seasonal low of 3,597.4 feet on March 16, according to Tom Ryan of the U.S. Bureau of Reclamation. The current inflow forecast (see Figure 13) projects that Lake Powell will reach a seasonal peak elevation of 3,606 feet in June.

Arizona reservoir levels for April 2007 as a percent of capacity. The map depicts the average level and last year's storage for each reservoir, while the table also lists current and maximum storage levels.



Reservoir Name	Capacity Level	Current Storage*	Max Storage*	Change in Storage*
1. Lake Powell	48%	11,784.0	24,322.0	147.0
2. Lake Mead	51%	13,426.0	26,159.0	-504.0
3. Lake Mohave	96%	1,742.3	1,810.0	57.5
4. Lake Havasu	92%	571.1	619.0	8.9
5. Lyman Reservoir	28%	8.4	30.0	0.1
6. San Carlos	30%	261.6	875.0	-19.1
7. Verde River System	28%	79.8	287.4	1.4
8. Salt River System	68%	1,376.4	2,025.8	-12.5

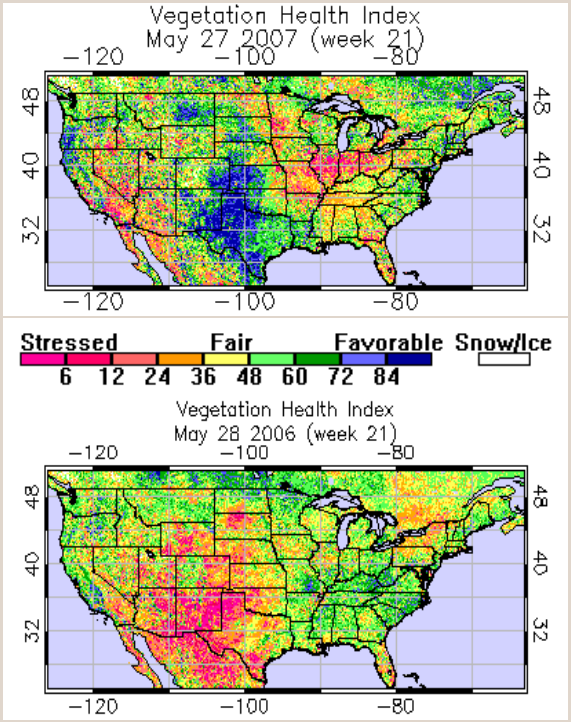
* thousands of acre-feet

Photos by the National Park Service

Vegetation Health

The satellite-derived vegetation health index for May 27, 2007 (top image) shows much of the state in fair-to-stressed condition, in comparison to a 20-year average. Northeastern Arizona benefited from spring precipitation in late March and early May. Though below-average in most locations, winter and spring precipitation may have contributed to a reasonable green-up in some parts of the state. Southern Arizona, as well as areas in the rain-shadow of the Mogollon Rim, exhibit the greatest vegetation stress.

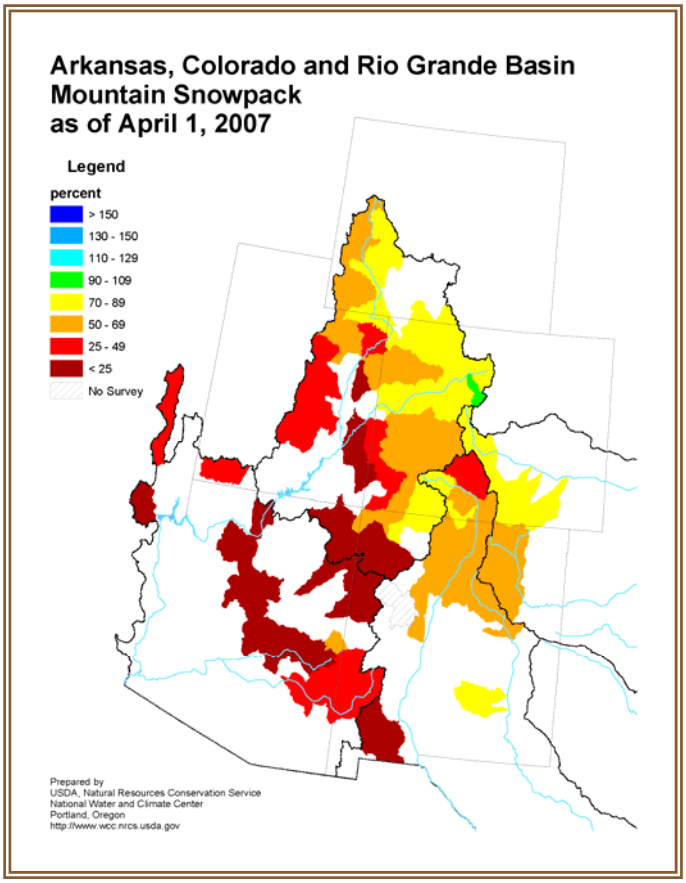
In contrast, the record-breaking dryness of the 2005-06 winter left virtually all of Arizona with exceedingly stressed vegetation by the late spring (bottom image). Despite low live and dead fuel moisture across the majority of Arizona in 2007, the state has suffered few large fires this pre-monsoon season. Fire managers have aggressively suppressed Arizona blazes.

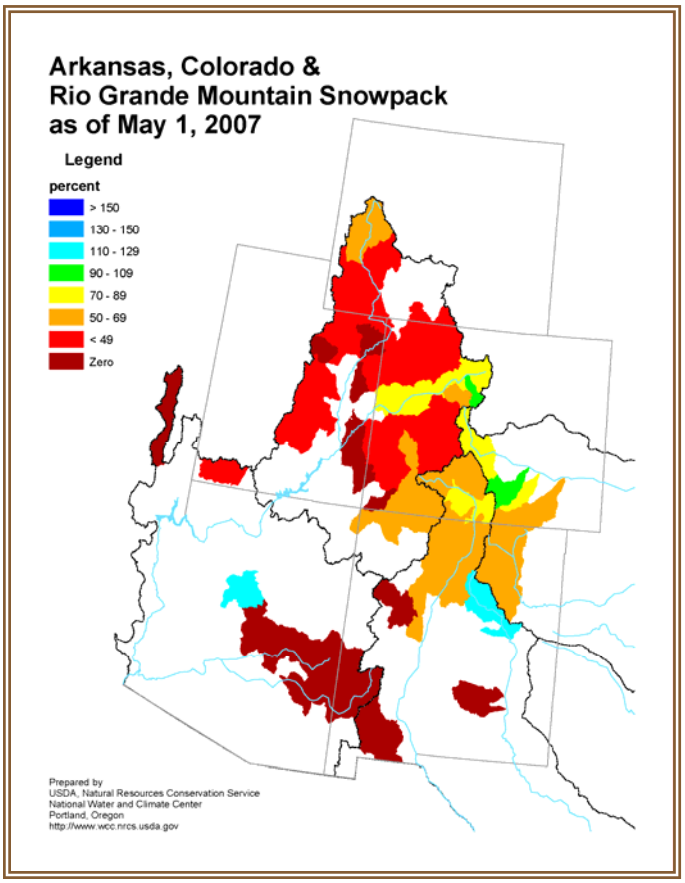


Images are obtained from the NOAA National Environmental Satellite, Data and Information Service (NESDIS).

Mountain Precipitation







River basin snowpacks were melted out by May 1, with the only measurable snow remaining in the Inner Basin of the San Francisco Peaks.

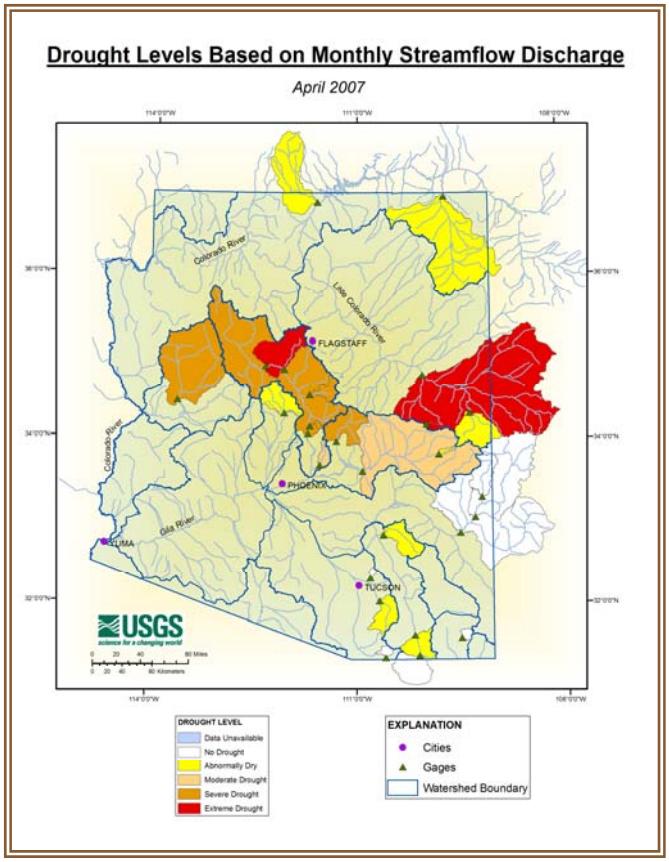
Precipitation Update

Data from high elevation SNOTEL sites show that precipitation for April was 48 percent of average over the Salt River basin, 27 percent of average over the Verde River basin, and 100 percent of average over the San Francisco-Upper Gila River basin. The Little Colorado River basin received 40 percent of average precipitation in April.

Cumulative precipitation since October 1 remains below average in all basins, ranging from 46 percent to 80 percent of average (see table).

Watershed	Percent (%) of 30-Yr. Average Water Year Precipitation October 1 – April 30
Salt River Basin	65%
Verde River Basin	46%
Little Colorado River Basin	60%
San Francisco-Upper Gila River Basin	80%
Other Points of Interest	
Central Mogollon Rim	63%
Grand Canyon	56%

Mountain Streamflow



April Streamflow

April Streamflow Observed at USGS Gauging Stations (NRCS from USGS data)

Water body	April Runoff in Acre Feet	Percent of 30-Year Median
Salt River near Roosevelt	30,758	30%
Tonto Creek	1,680	32%
Verde River at Horseshoe Dam	10,643	34%
Combined Inflow to Salt River Project (SRP) reservoir system	43,081	31%
Little Colorado River above Lyman Lake	452	13%
Gila River to San Carlos Reservoir	11,770	74%

Streamflow Forecasts

Streamflows through springtime are forecast to range from 26 percent of median in the Salt River near Roosevelt to 71 percent of median streamflow in the Gila River near Soloman (see table below).

Water body	Forecasted Runoff (April 1-May unless noted) in Acre Feet	Percent of 30-Year Median (unless noted)
Salt River near Roosevelt	37,000	26%
Tonto Creek near Roosevelt	1,400	17%
Verde River above Horseshoe Dam	20,000	46%
San Francisco River at Clifton	13,400	72%
Gila River near Soloman	30,000	71%
San Carlos reservoir inflow	7,500	49%
Little Colorado River above Lyman Lake	Apr-June – 1,350	31%
Little Colorado River at Woodruff	350	42%
Colorado River inflow to Lake Powell	Apr-July – 4.0 million	50% of 30-yr. avg.
Virgin River at Littlefield	Apr-July – 17,000	23% of 30-yr. avg.

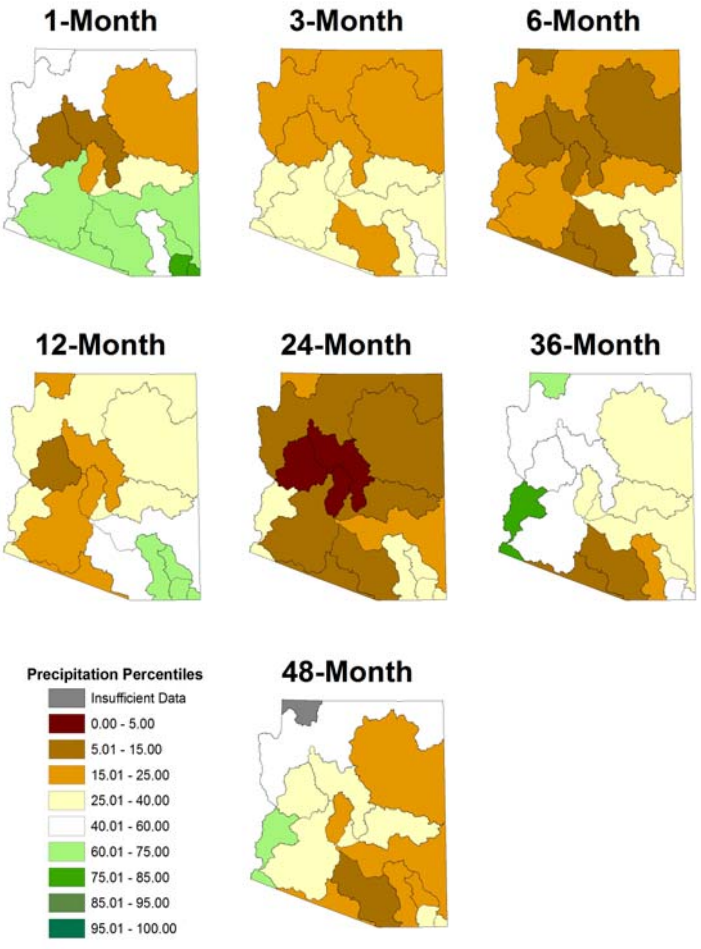
Temperature and Precipitation


April brought three different precipitation regimes to the state. The northernmost watersheds had near average precipitation, while the watersheds across central Arizona had precipitation well below average, and the southern watersheds had above average precipitation. The lack of rainfall across the forested watersheds worsened the wildfire conditions. Temperatures across the state were again well above average, but unlike March, only two climate divisions were above the 85th percentile for temperature.

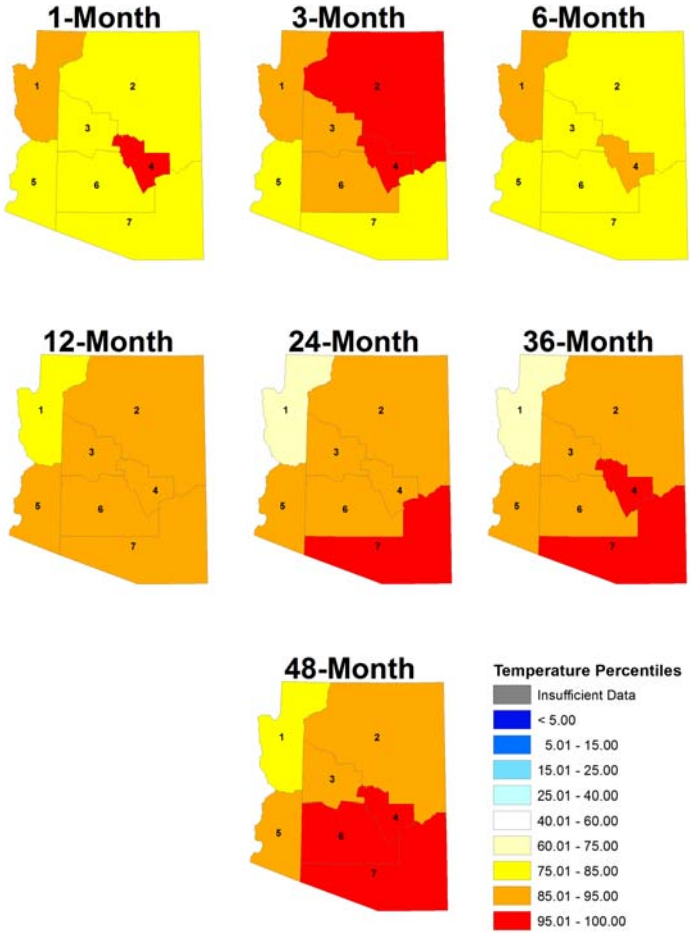
Precipitation for the 3-month period of February through April was below the 40th percentile everywhere in the state except the southeast corner. The combination of extremely dry conditions and temperatures above the 95th percentile on the Colorado Plateau during the past 3 months hastened the snowmelt and contributed to dangerous fire conditions.

For more information, visit http://www.public.asu.edu/~aunjs/Update.html.

Precipitation Percentiles by Watershed



Temperature Percentiles by Climate Division



Weather Outlook

Arizona Drought Monitor Report - Produced by the Arizona State Drought Monitoring Technical Committee

Co-chairs:
Gregg Garfin, University of Arizona – Institute for the Study of Planet Earth

Tony Haffer, National Weather Service

Mike Crimmins, Extension Specialist, University of Arizona Cooperative Extension

Charlie Ester, Salt River Project

Larry Martinez, Natural Resources Conservation Service

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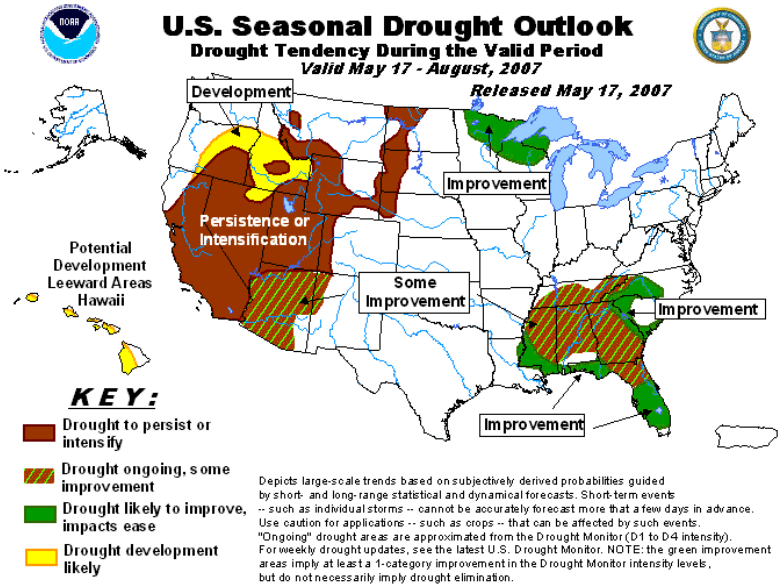
Computer Support: Andy Fisher, Arizona Department of Water Resources

ARIZONA DEPARTMENT OF WATER RESOURCES

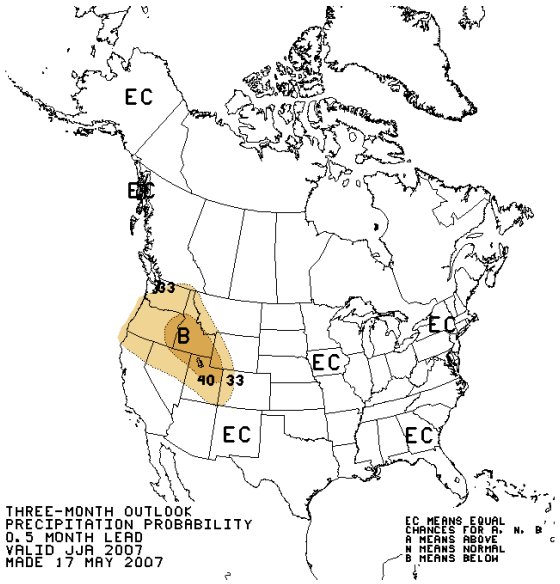
Drought Outlook

The NOAA Climate Prediction Center's Seasonal Drought Outlook indicates drought conditions will persist statewide through August 2007, while portions of the state may see some improvement in drought conditions resulting from rainfall in localized thunderstorms.



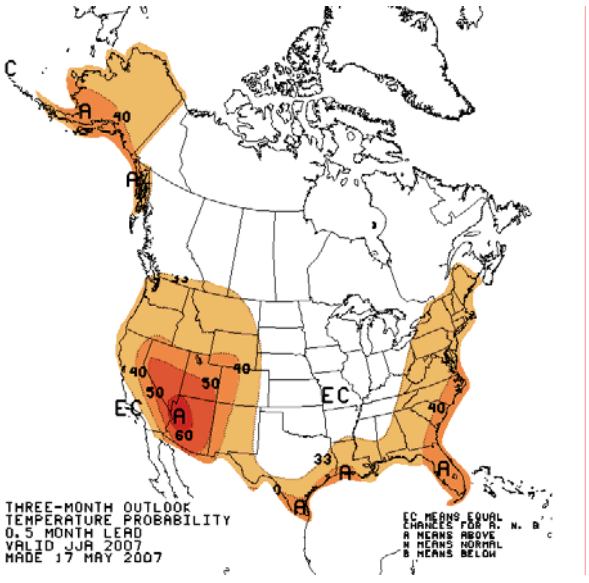
Also see the most current Southwest Climate Outlook - www.ispe.arizona.edu/climas/forecasts/swoutlook.html
For additional weather information from the Office of the State Climatologist for Arizona - http://geography.asu.edu/azclimate

June to August Weather Outlooks



Precipitation

Equal likelihood of above-average, average, or below-average conditions across the state during the 90-day period



Temperature

High level of confidence temperatures will be above average across the entire state